PPFA
Plastic Pipe and Fittings Association
800 Roosevelt Rd., Bldg. C, Suite 20 • Glen Ellyn, IL 60137-5833
Phone: 630/858-6540 • Fax: 630/790-3095 • www.ppfahome.org

#3

November 29, 2001

RESUBMITTED 8/1/2005

Michael L. Nearman
California Building Standards Commission
2525 Natomas Park Drive, Suite 130
Sacramento, CA 95833

Dear Mr. Nearman:

The Flexible Polyolefin Hot and Cold Water Systems Product Line Committee of the Plastic Pipe and Fittings Association challenges modifications to the California Plumbing Code published by the California Building Standards Commission (BSC) on behalf of itself and other state agencies on October 17, 2001 in their 45-Day Notices. The specific proposed modifications we are challenging relate to the deletion of cross-linked polyethylene (PEX) tubing from the California Plumbing Code (Sections 604.1.1, 604.11, 604.11.1, 604.11.1.2 and Table 14-1). Those modifications are a direct result of the comments submitted by Mr. Cardozo and Mr. Reid dated July 23, 2001.

The comments by Mr. Cardozo and Mr. Reid are not reasonable assumptions predicated upon facts, or expert opinion supported by facts. They are speculation, unsubstantiated opinion and narrative, clearly inaccurate and erroneous, without foundation in fact. Their submissions are a transparent attempt to discredit cross-linked polyethylene by mischaracterization and guilt by unrelated association.

Cross-linked polyethylene is an enhanced form of polyethylene. The California Plumbing Code has permitted polyethylene water-service tubing since the early 1970s. "The cross linking does not change the fundamental chemistry of polyolefin polymers . . . " *(Thomas Reid Associates, July 23, 2001, letter to Mr. Cardozo, re: Environmental effects of California adoption of PEX for potable water.)* The primary enhancement, cross-linking, makes cross-linked polyethylene suitable for use with hot water. Polyethylene was and is an approved material in the California Plumbing Code. Therefore, cross-linked polyethylene, with the same fundamental chemistry as PE, is not subject to CEQA since its authorization is not an activity that may cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. The commentator leads you to believe that cross-linked polyethylene contains unique "chemical additives such as antioxidant, ultraviolet blockers, fillers and pigments." These are the same additives found in the already code approved polyethylene (except there are no "fillers" in either cross-linked polyethylene or polyethylene). The "environmental condition in the arid lands from Southern California and Arizona to Texas" has not caused problems for polyethylene.

Polyethylene was exempted from the EIR started during the 1980's relating to the expanded use of plastic pipe; therefore, any allegation that materials present an environmental threat simply because they are polyolefins is without merit.

CEQA must not be subverted into an instrument for the oppression and delay of social, economic, or recreational development or advancement. (*Laurel Heights Improvement Assoc. v. Regents of U.C.* (1993) 6 Cal. 4th 1112 and *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553)

For these reasons and the following facts, the Department of Housing and Community Development (HCD) should find that the approval of cross-linked polyethylene as published in the 2000 Uniform Plumbing Code (UPC) is not a "project" pursuant to CEQA because it is not an activity that could cause either a direct physical change in the environment, or a reasonably indirect physical change in the environment. Allowing plumbers the ***option*** to use cross-linked polyethylene in California will not have a significant effect on the environment.

We emphasize the word ***option*** for good reason. The so-called "unprecedented expansion" of approving the use of cross-linked polyethylene in California would allow the use of cross-linked polyethylene only when that is what the user of the Code wishes. The inclusion of cross-linked polyethylene in the California Plumbing Code does not mandate its use; it just provides the user of the Code with an ***option*** to use the product.

Cross-linked polyethylene is NOT PB: The base material for cross-linked polyethylene and polyethylene is ethylene while the base material for polybutylene (PB) is butene. The ASTM performance standards developed for cross-linked polyethylene encompass additional and more stringent requirements than the standards for PB. These requirements include stabilizer functionality testing, environmental stress crack resistance testing and bent tube testing. Standards and protocols for evaluating performance in chlorinated water systems (ASTM F 2023) exist now that did not exist when PB was introduced.

Manufacturing Methods: All cross-linked polyethylene piping products manufactured for potable water use in the U.S. are independently tested and certified to the ***same*** ASTM performance standards (ASTM F 877) no matter how they are manufactured. In addition, those products are independently tested and certified to the requirements of ANSI/NSF-61, requirements that are more encompassing than the mandates of the Federal Safe Drinking Water Act.

Mr. Reid's assertion that the degree of cross-linking varies from 40 percent to 90 percent is erroneous. The attached ASTM F 876 cites the minimum range of cross-linking is 65% to 70%.

Fire Safety: Fire safety - For over three decades the plastic pipe industry has proactivly worked to insure that its products are used safely. This has included participation in research efforts as well as engineering and code writing thruout the United States.

In fire situations, plastic pipe is in fact far less thermally conductive than metal piping, a situation that prevents the spread of fire by conducted heat to rooms surrounding the one affected by fire. This is a major fire safety issue with copper and cast iron piping materials.

Installed in accordance with the building code and manufacturers instructions as well as existing caveats in the model Uniform Plumbing Code, there are no fire safety issues that have not been addressed. All fire-stopping products listed for use have an associated plastic pipe material that has been proven in the laboratory and in the field.

Mechanical Performance: Cross-linked polyethylene is subjected to new and rigorous testing requirements. Cross-linked polyethylene regularly undergoes performance testing by recognized third-party certifying agencies. In contrast, the California State Legislature has declared, "the deterioration of copper piping has become a serious problem in various communities in the state." (Health and Safety Code § 17921.9(a)(1).) Cross-linked polyethylene undergoes performance testing such as stabilizer functionality, environmental stress crack resistance and now the new ANSI/ASTM Standard F 2023 "Standard Test Method for Evaluating the Oxidative Resistance of Cross-linked Polyethylene (PEX) Tubing and Systems to Hot Chlorinated Water". These tests demonstrate that the antioxidants protect the pipe from premature mechanical failure. The superb mechanical performance of cross-linked polyethylene has been verified by years of successful use in plumbing applications both in Europe and the U.S.

Solid Waste Management: Cross-linked polyethylene extrusion waste is being utilized in Europe as a clean-burning solid fuel for the production of electricity. In the U.S., there are ongoing projects to determine the feasibility of utilizing extrusion waste to generate steam.

ANSI/NSF 61: NSF International is not a code writing body. It is a standards development body. "In response to a competitive request for proposals from the U.S. Environmental Protection Agency (USEPA), a Consortium led by NSF International (NSF) agreed to develop voluntary third-party consensus standards and a certification program for all direct and indirect drinking water additives. Other members of the Consortium include the American Water Works Association Research Foundation, The Association of State Drinking Water Administrators, the Conference of State Health and Environmental Managers, and the American Water Works Association."(ANSI/NSF 61 Forward) ANSI/NSF 61 is the only nationally recognized consensus standard for evaluating health effects of materials that come in contact with potable water. Therefore, the State of California should require compliance with ANSI/NSF 61 for all products that come in contact with potable water. This compliance is accomplished by the manufacturers of cross-linked polyethylene testing and listing their products through one or more of the various third party certification organizations recognized by many jurisdictions in the State of California.

Leaching: Leaching is not an issue. All cross-linked polyethylene piping sold for potable water use in the U.S. is tested and independently certified to ANSI/NSF 61. "ANSI/NSF 61, and subsequent product certification against it, has replaced the USEPA Additives Advisory Program for drinking water system components. USEPA terminated its advisory role in April 1990. For more information with regard to USEPA's actions, refer to the July 7, 1988 *Federal Register* (53FR25586)" (forward ANSI/NSF 61). ANSI/NSF Standard 61 is a health effects standard for products conveying potable water with coverage far exceeding the criteria of the Federal and State safe drinking water acts. The standard evaluates products for all extractants that the product may convey (leach) into drinking water and is not limited to only those 84 substances covered by the Federal Safe Drinking Water Act.

Mr. Reid states, "the potential environmental impact from chemical leaching or mechanical failure is obvious." As we have shown in this response there are none.

Permeation: First and foremost on this issue is that no piping material should be installed in a contaminated environment as prescribed by all codes and standards used in the United States. Additionally, polyethylene which has been used in the State of California for twenty plus years has not presented any known permeation issues when installed in accordance with the California Plumbing Code. With regard to termiticides the California Code of Regulations (Title 3. Food and Agriculture) Division 6. Pesticides and Pest Control Operations, addresses the requirement for the proper application of termiticides for the protection of the public and the environment. This concern of the commentator is additionally reduced by the fact that Dursban™, the most popular termiticide in use today, is being removed from the market, and that the replacement products use water as the carrier for the termiticide instead of the "low molecular weight substances" used in Dursban™.

City of LA Approval: The major manufacturers of cross-linked polyethylene have City of LA product approvals for their cross-linked polyethylene products. This is in contrast to the statement made by Mr. Reid. We have included those listings as attachments.

Air Quality: Releases in the cross-linked polyethylene manufacturing processes have been determined to be non-hazardous. During the cross-linked polyethylene installation process, nothing is released, unlike the fumes from torches and flux that are permitted today in the California Plumbing Code.

CEQA Does Not Apply: As we have stated at the beginning of this challenge "the comments made by Mr. Cardozo and Mr. Reid are not reasonable assumptions predicated upon facts, or expert opinion supported by facts. They are speculation, unsubstantiated opinion and narrative, clearly inaccurate and erroneous, without foundation in fact." Their submissions are a transparent attempt to discredit cross-linked polyethylene by mischaracterization and guilt by unrelated association. They have provided "no substantial evidence, in light of the whole record." Allowing plumbers the ***option*** to use cross-linked polyethylene in the State of California does not fall under the requirements for CEQA because there is no evidence that this may cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment.

- Cross-linked polyethylene is enhanced polyethylene
- Cross-linking does not change the fundamental chemistry of polyethylene
- Cross-linked polyethylene is not polybutylene
- Cross-linked polyethylene presents no fire danger that are not mitigated by the Building Code
- Cross-linked polyethylene releases nothing in the air during its installation
- Cross-linked polyethylene presents no solid waste disposal issues
- Cross-linked polyethylene presents no permeation issues that are not covered by state law

- All cross-linked polyethylene is manufactured to the same Standard
- All cross-linked polyethylene sold in the U.S. is third party certified for health effects
- All cross-linked polyethylene sold in the U.S. is third party certified for field performance
- The Code only allows one the option to use a listed material; it does not mandate its use
- Polyethylene was exempted from the EIR of the 1980's
- Cross-linked polyethylene is not subject to CEQA

Now that the agencies involved have heard both sides of the story, we ask that the provisions in the 2000 UPC (Sections 604.1.1, 604.11, 604.11.1, 604.11.1.2 and Table 14-1) relating to cross-linked polyethylene be restored in the California Plumbing Code by all agencies involved. We have presented facts with substantiation as the basis for this request. The comments submitted by Mr. Cardozo and Mr. Reid are just comments, without back up material or evidence to support their claims. The agencies have adequate time to make this determination prior to the codification of the code by the Building Standards Commission.

Sincerely,

Robert Friedlander
Chairman, Flexible Polyolefin Hot and Cold Systems Product Line Committee

For, AT Plastics, Bow Industries, Mercury Plastics, NIBCO Inc., REHAU Inc. (not a PPFA member, but a participant in this challenge), Vanguard Piping Systems, WIRSBO and ZURN U.S. Brass.

Attachments:
ASTM F876
ASTM F877
ASTM F2023
Letter from Dr. Paul Koch, Ph.D.
City of Los Angeles Approvals